BACKGROUND: Selection of biological versus mechanical heart valve replacement entails tradeoffs in the risk and expected cost of post-operative bleeding, embolic events and reoperation. Additionally, the risk of these events varies by age at implant.
OBJECTIVE: To identify the direct medical costs to the NHS of biological and mechanical valve replacement in younger versus older patients.
METHODS: A Markov decision-analytic model was constructed to identify the cumulative lifetime costs of valve replacement and related events in a simulated cohort of 10,000 patients followed from valve implantation until death. Events included bleeding, embolism, endocarditis, structural valve deterioration, reoperation and death. Event rates were modeled using linear, and non-linear statistical hazard functions based on clinical series reported in the literature. Medical resource use related to events was estimated based on clinical expert opinion. Costs were assigned to each event using standard lists of NHS costs.
RESULTS: For aortic valve replacement, the expected lifetime costs were £6,812 (biological) and £8,873 (mechanical) for persons aged 60, versus £6,281 (biological) and £8,137 (mechanical) for persons aged 70 at implant, respectively. In the mitral position, costs were £6,968 (biological) and £8,760 (mechanical) versus £6,299 (biological) and £7,989 (mechanical) in persons aged 60 versus 70 at implant respectively. Results were most sensitive to bleeding, embolic and reoperation event rates, but less sensitive to the cost per event.
CONCLUSION: The expected lifetime cost of biologic valve replacement was lower than mechanical valve replacement for both age groups and valve positions. This suggests the economic impact of anticoagulation therapy, bleeding and embolic events, which occur at higher rates in the mechanical valve, is greater than the economic impact of structural valve deterioration leading to reoperation, which is greater in the biological valve.

CV6

COST-EFFECTIVENESS OF STATINS: MOVING BEYOND THE PRIMARY AND SECONDARY PREVENTION DISTINCTION

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BACKGROUND: Economic analyses of cardiovascular disease (CVD) prevention with statins have generated controversy on the most efficient allocation of health care funds: primary prevention, secondary or both? Previous analyses have focused on one setting or the other. Comparing these two oversimplifies the task of allocating health care resources and may lead to unjustified decisions concerning "appropriate" statin use. Instead, an integrated view across the continuum of risk is required.
METHODS: An economic model of CVD prevention with pravastatin—Continuum of Risk Evaluation (CORE)—based on West of Scotland Coronary Prevention Study (primary prevention) and Cholesterol and Recurrent Events (secondary prevention) study data is detailed. The model simulates 10,000 individuals at various stages of CVD (prior manifestation of CVD through multiple events). All events are tallied in monthly cycles with costs and life expectancy implications applied appropriately.
ANALYSES: Analyses were completed for various populations and treatment strategies to help determine the most cost-effective scenarios. For the purpose of these analyses, populations were described in terms of the proportion of individuals at various disease stages at the start of follow-up. Treatment strategies were defined on the basis of the risk cut-off at which treatment is initiated for individuals without pre-existing disease. Analyses were conducted following the NCEP and Canadian treatment guidelines.
CONCLUSION: An integrated approach to prevention of CVD is an area that has not been explored in term of its economic impact. CORE permits realistic analysis of policy decisions which involve the entire continuum of risk rather then isolated consideration of specific, but arbitrary, "stages" of disease.

CV7

AMLODIPINE REDUCES HOSPITALIZATION ASSOCIATED WITH TREATMENT OF CARDIOVASCULAR DISEASES IN PATIENTS WITH CLINICAL CORONARY ARTERY DISEASE

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OBJECTIVE: To examine whether amlodipine can reduce hospitalization associated with treatment of cardiovascular disease (CVD) in patients with angiographic evidence of coronary artery disease. Amlodipine is a long acting calcium channel antagonist that has been proven to be effective in treating cardiovascular diseases.
METHOD: We used clinical data derived from the Prospective Randomized Evaluation of Vascular Effects of Norvasc Trial (PREVENT). PREVENT was a 3-year, randomized, masked, placebo-controlled, multicenter, clinical trial originally designed to test the antiatherogenic effect of the calcium channel blocker amlodipine in 825 patients with coronary artery disease (417 patients for amlodipine and 408 patients for placebo). The outcome measures were clinical CVD events associated with hospital care which included congestive heart failure (CHF), myocardial infarction (MI), stroke, angina, coronary artery bypass graft (CABG), percutaneous coronary angioplasty (PTCA), stents, athrectomy, valve replacement, and catheterization.
RESULTS: Overall, the net number of hospitalization associated with CVD averted was 27.9 per 100 patients (38.51% reduction) in the amlodipine patient group over three years of the study. Comparing with the placebo group, the treatment group had fewer hospitalizations related to PTCA (−11.75 per 100 patients, 52.69% reduction), CABG (−3.03, 42.62% reduction), stent (−2.02, 41.22% reduction), angina (−9.27, 31.52% reduction), and CHF